The British Tank Detachment at
Cambrai
Lessons Learned and Lost Opportunities

by Major David P. Cavaleri

"And therefore I consider that we were not beaten by the genius of Marshal Foch, but by 'General Tank,' in other words, a new weapon of war..."

General der Infanterie A.D.H. von Zwehl, *Die Schlachten im Sommer, 1918, am der Westfront*.

On September 15, 1916, the British Expeditionary Force under the command of General Sir Douglas Haig employed tanks in support of infantry operations during the Battle of the Somme. In a previous article (*ARMOR*, November/December 1995), I discussed the decision-making process behind Haig's commitment of tanks at that time. This article analyzes the British development of mechanized doctrine leading up to the November 1917 Battle of Cambrai and the impact of the lessons learned from that operation. In the final analysis, the British selectively applied certain lessons to immediate tactical problems, but failed to grasp the implications of mechanized operations for the future.

At the end of September, 1916, Lieutenant Colonel Hugh Elles took command of the British Tank Detachment. He was described by his primary staff officer, Major J.F.C. Fuller, as "boyish and reckless in danger; perhaps a better soldier than a strategist, yet one who could profit from the cooperation of his advisors, and one who was universally loved and trusted by his followers."[1] Historian Douglas Orgill looked beyond Elles' personality and wrote that Elles represented a "bridge between the new military knowledge and the old soldierly virtues."[2] Despite Elles' personal leadership qualities, however, Major Fuller was the one responsible for developing doctrine and training programs.

At their first meeting in late 1916, Elles stated that "this show [the Tank Detachment] badly wants pulling together; it is all so new that one hardly knows which way to turn."[3] Elles charged Fuller with creating a sense of discipline and *esprit de corps* in the detachment. Fuller regarded this mission as a three-part problem. First, he had to instill a sense of discipline, which he pursued via a series of lectures on the subject. Second, he had to instruct the officers in new doctrine. And third, he had to reorganize the detachment so as to maximize the use of its equipment.

Fuller was an infantry officer with a reputation for being a highly efficient staff officer. In February 1917, he published a training manual entitled "Training Note #16," designed to standardize all training practices in the detachment.[4] Fuller organized the manual in nine sections: detachment organization, operations, tactics, cooperation with other arms, preparations for offensives, supply, communication, reinforcements, and camouflaging. Calling the tank "a mobile fortress, which could escort the infantry into the enemy's defenses, and from behind which they could sally forth and clean up his trenches,"[5] he believed that tanks were capable of a more offense-oriented role than had been demonstrated during the Somme operation.

In June, 1917, Fuller produced a document entitled "Projected Bases for the Tactical Employment of Tanks in 1918." In this study, he drew on the results of ineffective tank employment during the battles of the Somme (September 1916), Arras (April 1917), and Messines (June 1917). Fuller advanced three points based on his analysis. The first was that the tank's effectiveness was related directly to the terrain over which it operated. The second was that, if properly employed, tanks were capable of executing a penetration which could allow for a breakthrough by follow-on cavalry and infantry forces. The third principle was that the success of any tank penetration required a surprise artillery bombardment not to exceed forty-eight hours in duration.[6] Fuller expanded on Ernest D. Swinton's concepts in his belief that tanks were capable of more than strongpoint and wire obstacle reduction. "He soon became the leading advocate," wrote B.H Liddell Hart, "of the tanks' wider potentialities — as a means to revive mobile warfare, instead of merely as a modernized 'battering ram' for breaking into entrenched defenses.[7]

Later in 1917, Fuller proposed an operation to British General Headquarters designed to test the validity of his ideas. Fuller's initial recommendation proposed a raid of no more than a few hours duration, designed to penetrate enemy defenses, capture prisoners, and shake up the defenders. In an August 1917 paper entitled "Tank Raids," he summarized the objectives of just such a limited raid as "Advance, hit and retire; its objective being to destroy the

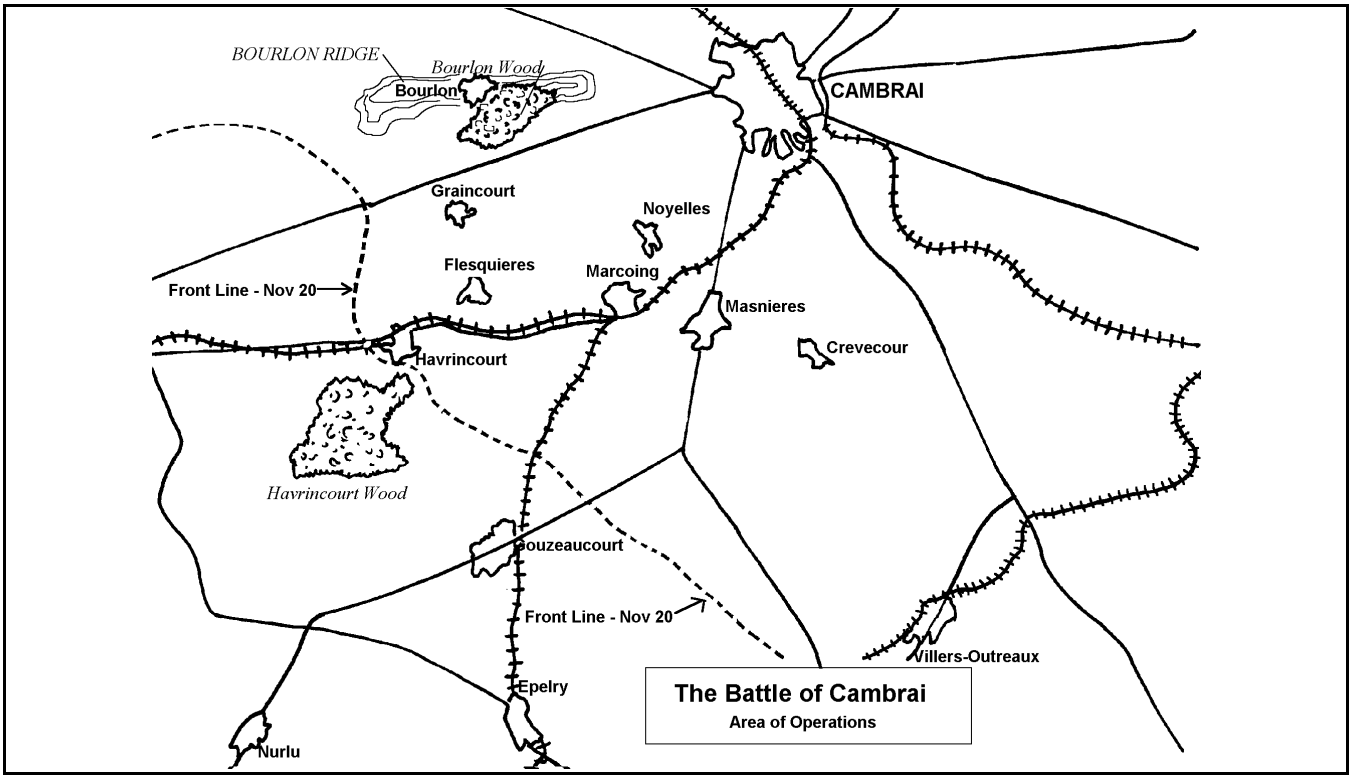
enemy's personnel and guns, to demoralize and disorganize him, and not to capture ground or hold terrain."[8]

Unfortunately, such a plan had little to recommend it to GHQ; the limited tactical gains were outweighed by the potential loss of surprise and vehicles. However, the Third Army Commander, General Julius Byng, read the proposal and recognized its potential. He developed a plan which incorporated Fuller's basic concepts but which had much larger objectives, especially regarding the capture of territory.

Byng wanted the focus of the operation to be the communications center at Cambrai; once that town was captured he could then release his cavalry to the northwest to raid behind German lines. Byng's plan relied on the tanks to penetrate the defense and assumed that such a break-in would automatically result in a cavalry breakthrough. His plan meticulously prepared for the initial break-in, but discounted the fact that at that stage of the year, he lacked adequate reserves to follow through. Even if the operation was successful in effecting a break-in of the "outpost" and "battle" zones, he would not be able to penetrate into the "rearward" zone to launch his cavalry.[9]

Haig ultimately decided on an advance with limited objectives in the vicinity of Cambrai, but not necessarily focused on the town itself. He revised Byng's plan to concentrate on the Bourlon Ridge which, if captured, would provide British forces with excellent observation of the "battle" and "rearward" zones. Unwilling to discount completely the possibility of a breakthrough, Haig nevertheless retained the option to terminate the operation at the end of forty-eight hours unless clear progress was evident.[10] By October, 1917, Fuller had revised his original "Tank Raids" proposal to incorporate Byng's and Haig's guidance. These new plans featured the tank in a spearhead-type role.

By mid-November 1917, the staff at GHQ had finalized the plans for the Cambrai attack. The sector was constricted by two canals, the Canal du Nord on the left and the Canal de l'Escaut on the right, six miles apart. The initial attack area included a number of small villages and two dominant ridgelines, the Flesquieres and Bourlon. The



Hindenburg trench system in this sector was over five miles deep, complete with dugouts, machine gun posts, wire obstacles, antitank ditches in excess of twelve feet wide, and supporting artillery batteries.[11]

The Hindenburg Line proper ran in a northwesterly direction for almost six miles from the Scheldt Canal at Banteux to Havrincourt. The line then turned north for four miles to Mouvres. Roughly one mile behind this first line lay the Hindenburg Reserve Line, and an additional three and a half miles behind that lay the Beaurevoir, Masnieres and Marquian Lines.[12]

The final plan called for the tanks to penetrate the Hindenburg Line between the two canals, pass the cavalry through the gap, then continue forward and assist the infantry in seizing Bourlon Wood and the town of Cambrai. The tanks and infantry would continue to expand the penetration while the cavalry raided support units in the "rearward" zone and beyond.[13] Fuller expressed concern over the suitability of the terrain beyond the "battle" zone and over the lack of reserves available to exploit any breakthrough, but the plan stood as written.[14] The Cambrai plan was a mixture of traditional operation and innovative thinking. The plan of attack dispensed with the traditional long duration artillery bombardment and instead, the 1,003 supporting artillery guns were to conduct a brief suppressive bombardment, concentrating on counter-battery and smoke-screen fire. Once the assault began in earnest, the artillery would shift to the creeping barrage pattern similar to that designed by General Rawlinson for the 1916 Somme operation. The tanks were assigned the mission of breaching the trenches and wire obstacles and leading the attack, precluding the need for an intense preparatory bombardment.

Byng anticipated a breakthrough which would allow the cavalry to pass through to the "rearward" zone in order "to raid the enemy's communications, disorganize his system of command, damage his railways, and interfere as much as possible with the arrival of his reinforcements."[15] The final plan reflected the level of development which British mechanized doctrine had reached under Fuller; Haig was willing to commit the tanks to a crucial role and expected them to accomplish more than obstacle reduction. At the same time, the exploitation and disruption role stayed with the cavalry who remained vulnerable on a battlefield replete with machine guns and artillery.

Fuller divided the six-mile-wide offensive sector into a series of objectives, each of which was further subdivided, based on the number of strongpoints, into "tank section attack areas." He assigned a three-tank section, along with an infantry section, to each attack area. Each tank carried a bundle of wood three or four feet in diameter and weighing over one ton. These were affixed to the front of each vehicle with chains. The wood was carried to fill in antitank ditches, thereby allowing the tank-infantry teams to negotiate three ditches as they leapfrogged through the defenses.[16]

On November 20, 1917, at 0620 hours, British artillery commenced a suppressive barrage along the six-mile-wide front. Unlike previous preparatory barrages, this forty-five minute barrage was predominantly smoke and high explosive. The artillery concentrated on suppressing the defenders' artillery and masking the tanks' advance. After less than one hour, the artillery began the creeping barrage and the tanks moved forward. The absence of a traditional preparatory bombardment probably contributed to the defenders' surprise and to the tanks' success in breaching the first defensive lines.

GHQ allocated 476 tanks to Byng's Third Army for the Cambrai attack. Out of this total, 378 were fighting tanks; 44 were devoted to communications, command and control; and the remaining 54 were assigned resupply duties. These last tanks each carried two tons of supplies and hauled an additional five tons on sledges over the breached obstacle networks. Fuller estimated that it would have required over 21,000 men to carry a similar resupply load, which represents a significant

savings in fighting troops who were not diverted from actual combat duties.[17] The tanks were accompanied and followed by elements of six infantry divisions. Waiting behind the safety of the British trenches were the five divisions of cavalry which Byng hoped to launch forward.

The opening stages of the attack were successful. Masked by smoke and the creeping barrage, the tanks tore holes through the wire obstacles and filled in ditches with the wood. Less than two hours after the attack began, the British captured the Hindenburg Main Line over the six-mile front between the two woods. By 1130, the Hindenburg Support Line, with the exception of the ridge at Flesquieres, was in British hands as well. By the end of the day, the BEF had penetrated to a depth of just over four miles, capturing over 5,000 prisoners, with a loss of just over 4,000.[18] The first day's operation demonstrated the effects of coordinated tank, infantry, and artillery tactics over suitable terrain within the parameters of a well thought-out tactical plan.

But the success of November 20 was mitigated by several failures. The British lost 179 tanks that day to a combination of enemy fire and mechanical breakdown. The tank/infantry teams penetrated to a depth of over four miles, but not deep enough to qualify as a breakthrough into the "rearward" zone. The cavalry divisions in most sectors never even made it into the battle, and the few cavalry units committed failed to accomplish anything significant in terms of rear area exploitation. In addition, the operation experienced several instances of degraded coordination between the tanks, infantry, and artillery. The 51st Infantry Division fell so far behind the assaulting tanks that, when the tanks reached the Flesquieres Ridge, the infantry could not detect the breaches in the wire.

A short while later, 16 tanks, without the protection of their own infantry teams, were destroyed by a battery of German field guns which were out of range of the tanks' weapons.[19] This incident illustrates clearly that Fuller's tactics needed refinement. While he had proven that tanks were capable of rapid penetration, they were by no means capable of independent operations.

Haig terminated the Cambrai attack on November 22, just as he had promised if the offensive failed to result in a breakthrough. He recognized that the BEF lacked the reserves needed to continue the attack because of the previous diversion of five divisions to the Italian Front at Caporetto.[20] One week after the attack began, he wrote, "I have not got the necessary number of troops to exploit our success. Two fresh divisions would make all the difference and would enable us to break out...."[21] This lack of reserves, combined with the cavalry's inability to achieve a breakthrough on their own, convinced Haig to end the attack after only limited gains. It is clear that no one, with perhaps the exception of Fuller himself, anticipated the extent or rapidity of success. Swinton reacted to the initial reports on November 20 with this comment: "I'm pleased all right, but I'm wondering. I bet that GHQ are just as much surprised by our success as the Boche is, and are quite unready to exploit it."[22]

The lack of available reserves resulted in the loss of British momentum at Cambrai. The Germans were able to fall back, regroup, and on November 30 launch a counterattack to eliminate the new British salient. The Germans began their attack at 0700 with an intense one-hour-long artillery bombardment, similar to the one used by the BEF on November 20th. Using proven *sturmabteilung* tactics, they succeeded in reducing the salient on an eight-mile front in just over three hours. Several minor successes followed, but they were unable to execute a rapid or violent breakthrough due to inadequate reserves, British reinforcements, and general troop exhaustion. The counterattack forced the BEF to withdraw partially to stabilize the lines, resulting in practically no net gain based on the success of November 20th. By December 7, the lines had stabilized. The Germans had, between November 20 and December 7, lost 41,000 men and 138 guns. The British had lost 43,000 men, 158 guns, and 213 of their available tanks.[23]

In strategic terms, the BEF had gained nothing. But from a tactical and developmental viewpoint, the battle of Cambrai represents a transition in BEF operations. Because of the complete tactical surprise and significant gains made in less than 12 hours, several contemporaries mark November 20, 1917, as a landmark of sorts in the history of warfare. Lloyd George later said that the battle "will go down to history as one of the epoch-making events of the war, marking the beginning of a new era in mechanized warfare."[24] Haig credited the use of tanks at Cambrai with making it possible "to dispense with artillery preparation, and so to conceal our intentions from the enemy up to the actual moment of attack,"[25] and stated that the tanks' penetration of the Hindenburg Line had "a most inspiring moral effect on the Armies I command... the great value of the tanks in the offensive has been conclusively proved."[26] Swinton, not surprisingly, claimed some credit for the success of November 20th. "It has an added interest," he wrote, "in that it was upon the lines here laid down [reference made to his February 1916 'Notes on the Employment of Tanks.'] that the epoch-making Battle of Cambrai was fought...."[27]

The combination of surprise, suitable terrain, adequate numbers of tanks, coordinated artillery bombardment, resourceful preparation and, most importantly, comprehensive planning resulted in a major penetration of enemy lines. The lessons learned in the areas of economy in men per weapon, in men per yard of front, in casualties, artillery preparation, cavalry personnel, ammunition, and battlefield labor were important.[28] While there was no denying the significance of the event, the British failed to convert the early success of November 20th, and Fuller set out to determine exactly why. Fuller and the General Staff of the Third Army developed a list of lessons learned based on the Cambrai operation.[29] Six of the most significant lessons, several of which remain applicable to present-day combined arms operations as well, appear below:

1. "Tank units and infantry units must maintain close liaison during offensive operations." Haig used the incident at Flesquieres Ridge as an example of this lesson: "This incident shows the importance of infantry operating with tanks and at times acting as skirmishers to clear away hostile guns...."

2. "Keep large reserves of tanks to replace unexpected losses in any sector."

3. "The present model tank is mechanically unable to deal with enemy parties in upper stories of houses."

4. "Tanks must not outdistance supporting infantry — this allows enemy to hide and reappear." This was a contributing factor in the cavalry's failure on November 20th.

5. "Infantry must not expect too much from tanks — they must assist the tanks with protection — this requires continuous combined arms training."

6. "Tanks used in small numbers are only 'frittered' away. If it is desired to continue the advance with tanks on the second day, a completely new formation of tanks should be earmarked."[30] Historian John Terraine alluded to this when he stated "the tanks [at Cambrai] had shown their effectiveness for breaking into even a very elaborate and strong trench position. Breaking through was another matter."[31]

In May, 1918, Fuller published an important doctrine study entitled "The Tactics of the Attack as Affected by the Speed and Circuit of the Medium D Tank," more commonly referred to as simply "Plan 1919."[32] His analysis called for the initial penetration of the "outpost" and "battle" zones by tanks. Once into the "rearward" zone, the tanks would seek out the enemy's command and control systems and artillery support, thereby assuming the role of the cavalry.[33] This plan represented a further innovation on tactics beyond those employed in September 1916 and November 1917. Fuller advocated the destruction of systems, rather than the elimination of enemy troop concentrations, and believed the end result would be the same: the crippling of the enemy's will and capacity to fight. His futuristic concept was based on the speed, maneuverability, and firepower capabilities of the Medium D tank, and he assumed, mistakenly, that the military establishment would agree with him. In order to execute his plan, Fuller required a force of over 5,000 tanks, an increase in Tank Corps personnel from 17,000 to 37,000, and a willingness on the part of the military to replace the horse-mounted cavalry with tanks.[34]

Despite the success of November 20, 1917, Fuller's "Plan 1919" was too radical for the leadership to endorse, and it never progressed beyond the theoretical stage. What "Plan 1919" represents is the continuing development of mechanized doctrine. The limited success of November 20th demonstrated the capabilities of tanks; in July 1918 at the Battle of Hamel, and later, in August, 1918, at the Battle of Amiens, the British Tank Corps had opportunities to demonstrate the potential for tank operational success on an increasingly greater offensive scale.

The Battle of Cambrai provides a picture of the tanks' development from infantry support weapons with limited offensive potential to weapons employed on the point of the offensive. They had proven capable of clearing a path for the infantry into the main defensive zone and demonstrated the potential to advance further. During the inter-war period, mechanized doctrine would vacillate between those who believed tanks should remain auxiliary to the infantry and those who were willing to take the doctrine to a higher level. Interestingly enough, it was the British who elected to revert back to the early philosophy, while the Germans, under General Heinz Guderian, explored the potential for expanded mechanized operations. In retrospect, the decision by both sides is logical. The British had won the war using traditional strategies augmented by innovative equipment and tactics, and therefore had little inclination to change. The Germans, on the other hand, had lost; their tactics had proven ineffective on the large scale of the Western Front, and they had everything to gain by adopting new equipment and strategies.

Notes

[1]J.F.C. Fuller, *Memoirs of an Unconventional Soldier,* (London: I. Nicholson and Watson, 1936), p. 88.

[2]Douglas Orgill, *The Tank: Studies in the Development and Use of a Weapon*, (London: Heinemann Publishing Co., 1970), p. 31.

[3]Fuller, *Memoirs of an Unconventional Soldier*, p. 87.

[4]*Ibid.*, p. 96ff.

[5]*Ibid.*, p. 97.

[6]*Ibid.*, pp. 129-130.

[7]B.H. Liddell Hart, *The Memoirs of Captain Liddell Hart, Vol. 1,* (London: Cassell and Company, Ltd., 1965), p. 87.

[8]Fuller, *Memoirs of an Unconventional Soldier*, pp. 172-175; see also Trevor Wilson, *The Myriad Faces of War,* (New York: B. Blackwell, 1986), p. 488.

[9]Orgill, pp. 35-36; see also Wilson, p. 488.

[10]Wilson, pp. 488-489; see also J.H. Boraston, *Sir Douglas Haig's Despatches, Dec 1915-April 1919,* (New York: Charles Scribner's Sons, 1927, pp. 152-153.

[11]*Ibid.*

[12]Boraston, pp. 153-154.

[13]Fuller, *Memoirs of an Unconventional Soldier*, pp. 181-182.

[14]*Ibid.*

[15]Boraston, p. 153.

[16]J.F.C. Fuller, *Tanks in the Great War*, (London: John Murray, 1920), pp. 136-153; see also Wilson, p. 489.

[17]Fuller, *Memoirs of an Unconventional Soldier*, p. 198.

[18]Boraston, p. 157; see also Wilson, p. 490.

[19]Fuller, *Memoirs of an Unconventional Soldier*, p. 209.

[20]Robert Blake (ed.), *The Private Papers of Douglas Haig, 1914-1919,* (London: Eyre and Spottiswoode, 1952), p. 265.

[21]*Ibid.*

[22]Ernest D. Swinton, *Eyewitness: being personal reminiscences of certain phases of the Great War, including the genesis of the tank,* (New York: Arno Press, 1972), p. 266.

[23]Wilson, p. 492; see also David Eggenberger, *A Dictionary of Battles* (New York: Thomas Y. Crowell Company, p. 1967), p. 73.

[24]David Lloyd George, *War Memoirs of David Lloyd George,* (Boston: Little, Brown and Company, 1933), p. 102.

[25]Boraston, p. 157.

[26]*Ibid.*, p. 173.

[27]Swinton, pp. 171-172.

[28]Arch Whitehouse, *Tank*, (New York: Doubleday and Company, Inc., 1960), p. 93.

[29]Fuller, *Memoirs of an Unconventional Soldier*, pp. 218-219.

[30]Blake, p. 269.

[31]John Terraine, *White Heat: The New Warfare 1914-1918,* (London: Sidgewick and Jackson, 1982), p. 242.

[32]Fuller, *Memoirs of an Unconventional Soldier*, pp. 332-335.

[33]Robert H. Larson, *The British Army and the Theory of Armored Warfare, 1918-1940,* (New York: University of Delaware Press, 1984), p. 90; see also Orgill, p. 89; see also Fuller, *Memoirs of an Unconventional Soldier*, p. 321.

[34]Orgill, p. 89; see also Fuller, *Memoirs of an Unconventional Soldier,* Appendix I, pp. 334-335.

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